

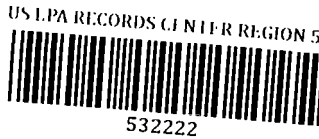
PRC Environmental Management, Inc  
233 North Michigan Avenue  
Suite 1621  
Chicago, IL 60601  
312-856-8700  
Fax 312-938-0118



**PRELIMINARY ASSESSMENT/  
VISUAL SITE INSPECTION**

**LECO CORPORATION  
FORMERLY HAYES ALBION PARAMOUNT DIE CAST  
STEVENSVILLE, MICHIGAN**

**MID 005 135 785  
FINAL REPORT**



**Prepared for**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Waste Programs Enforcement  
Washington, DC 20460**

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EPA Region	:	5
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Prepared by	:	PRC Environmental Management, Inc. (Cathy M. Collins)
Contractor Project Manager	:	Shin Ahn
Telephone No.	:	(312) 856-8700
EPA Work Assignment Manager	:	Kevin Pierard
Telephone No.	:	(312) 886-4448

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## EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the LECO Corporation (LECO) formerly Hayes Albion Paramount Die Cast (Paramount) facility in Stevensville, Berrien County, Michigan. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritizing RCRA facilities for corrective action.

Paramount operated the facility from 1949 to 1986. Paramount conducted aluminum die cast operations primarily for the automotive industry. Operations at the facility included drilling, tapping, facing and trimming the casting. No assembly work was conducted. Approximately 50 people were employed at the plant. LECO purchased the facility in 1987 for possible future property development. Currently no manufacturing processes are conducted at the facility. The facility buildings were demolished by LECO in 1988. In 1980, Paramount submitted a Part A permit application for storage in containers. According to the information available to PRC, no closure activities were initiated for the Former Drum Storage Area (SWMU 1) and its regulatory status is unknown.

The closest private drinking water well to the facility is located approximately 750 feet to the southwest on Red Arrow Highway. All other residences and businesses in the area are served by the Saint Joseph water system which receives its water from Lake Michigan. The nearest residence is located about 200 feet south of the facility. The facility is surrounded by a 7-foot fence with locked gates. Hickory Creek lies 2,500 feet to the southeast and flows in a northeasterly direction. Several small ponds lie between 1,500 and 3,000 feet to the south of the site. The facility is 1 mile east of Lake Michigan.

The PA/VSI identified the following four SWMUs at the facility:

### Solid Waste Management Units

1. Former Drum Storage Area
2. Former Tile Field
3. Former Abcor Unit
4. Former Cooling Water Pond

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No AOCs were identified.

Releases to on-site soils and ground water have occurred at the facility. Until 1981, excess hydraulic oils were discharged directly to the Former Tile Field (SWMU 2) for disposal. These oils contained polychlorinated biphenyls. The Former Abcor Unit (SWMU 3) was installed in 1981 to prevent the discharge of oils to SWMU 2, but an additional release occurred in 1986, when the Former Abcor Unit (SWMU 3) leaked into the Former Tile Field. The Former Tile Field (SWMU 2) was remediated in 1982 and 1986. The remediation activities were approved by the Michigan Department of Natural Resources. An additional release to soil and ground water occurred from the Former Cooling Water Pond (SWMU 4). Cooling water containing hexavalent chromium was discharged directly to the earthen pond from 1961 to 1963. Paramount stopped using chromium in its cooling water. Cooling water containing chromium which remained in the pond was treated with a bisulfite compound and the soil in the pond was excavated in 1963. This removal reviewed by the Michigan Department of Natural Resources (MDNR) and no additional action was required.

The potential for a release to surface water is low. The nearest surface water body, Hickory Creek is located 2,500 feet southeast of the facility. MDNR has not documented any releases to this creek originating from the LECO facility. The formerly contaminated areas have been remediated.

The potential for release to air is low for this facility, because no industrial operations are currently conducted at the facility.

PRC recommends resolving the status of the facility's permitted storage unit, Former Drum Storage Area (SWMU 1) or initiating RCRA closure at this unit, as necessary. PRC recommends no further action for other facility SWMUs.

## **1.0 INTRODUCTION**

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

**The purpose of the PA is as follows:**

- **Identify SWMUs and AOCs at the facility**
- **Obtain information on the operational history of the facility**
- **Obtain information on releases from any units at the facility**
- **Identify data gaps and other informational needs to be filled during the VSI**

**The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.**

**The purpose of the VSI is as follows:**

- **Identify SWMUs and AOCs not discovered during the PA**
- **Identify releases not discovered during the PA**
- **Provide a specific description of the environmental setting**
- **Provide information on release pathways and the potential for releases to each medium**
- **Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases**

**The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.**

**This report documents the results of a PA/VSI of the LECO Corporation (LECO), formerly Hayes Albion Paramount Die Cast (Paramount), facility (EPA Identification No. MID 005 135 785) in Stevensville, Berrien County, Michigan. The PA was completed on June 22, 1992. PRC gathered and reviewed information from the Michigan Department of Natural Resources (MDNR) and from EPA Region 5 RCRA files. The VSI was conducted on June 23, 1992. It included interviews with facility representatives and a walk-through inspection of the facility. PRC identified four former SWMUs and no AOCs at the facility.**

**PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and three inspection photographs are**

included in Attachment B. Field notes from the VSI are included in Attachment C. Attachment D includes sampling results from the 1982 remediation. Attachment E includes sampling results from the 1986 remediation.

## **2.0 FACILITY DESCRIPTION**

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; a history of documented releases; regulatory history; environmental setting; and receptors.

### **2.1 FACILITY LOCATION**

The LECO facility is located at 4947 Red Arrow Highway in Stevensville, Berrien County Michigan. Figure 1 shows the location of the facility in relation to the surrounding topographic features (latitude 42° 01' 37" N and longitude 86° 31' 58" W). The facility occupies 10.2 acres in a residential area.

The facility is bordered on the north by residences and Interstate 94, on the west by Win Schuler's restaurant, on the south by residences, and on the east by the Stevensville Cemetery and residences.

### **2.2 FACILITY OPERATIONS**

Currently no manufacturing processes are conducted at the facility. The facility buildings were demolished by LECO in 1988. Representatives of the former owner, Hayes Albion Paramount Die Cast (Paramount), were informed of the facility inspection but declined to participate. The PA revealed the following information about the facility's operations.

Paramount began operations at the facility in 1949. A steel quonset building on the site was first used for production. Until 1986, the facility conducted aluminum die cast operations primarily for the automotive industry (LECO, 1992). Operations at the facility included drilling, tapping, facing, and trimming the casting. No assembly work was conducted. Approximately 50 people were employed at the plant (EPA, 1983). The facility consisted of a single large building that occupied approximately 90,000 square feet.

The facility ceased operations in November 1986 and remained vacant. LECO purchased the facility in 1987 for future development of the land. No industrial or development activities have been conducted by LECO (LECO, 1992).



## 2.3

### WASTE GENERATION AND MANAGEMENT

The facility's former SWMUs are identified in Table 1. The facility's current layout, including approximate locations of SWMUs, is shown in Figure 2. The facility's former waste streams are summarized in Table 2. Since representatives of the former owner, Paramount, declined to participate at the inspection, the following information was gathered from the PA.

Currently no waste generating operations are conducted at the facility. Previous wastes generated consisted of waste trichloroethylene (F001) generated during vapor degreasing activities and nonhazardous wastewater and excess hydraulic oils generated from the die casting machines. Some of the oil from the die cast machines contained polychlorinated biphenyls (PCB). The facility also generated cooling water that contained a hexavalent chromium inhibitor.

Waste trichloroethylene (F001) from vapor degreasing operations was stored in 55-gallon drums at the Former Drum Storage Area (SWMU 1) before removal for reclamation by Gold Shield Solvents of Grand Rapids, Michigan. This waste was stored for greater than 90 days. No information was available on the generation rate of waste trichloroethylene (F001). Paramount stopped generating this waste in 1981 (Paramount, 1982).

Nonhazardous wastewater, excess hydraulic oil from the die cast machines, and storm water runoff from roof drains was originally disposed of into the Former Tile Field (SWMU 2). Some of the excess hydraulic oil contained PCBs. This procedure of discharging to the Former Tile Field (SWMU 2) was changed in 1981 when the Former Abcor Unit (SWMU 3) was installed to pretreat the wastewater by removing oils from the wastewater. Excess hydraulic oil was no longer deliberately disposed of to the Former Tile Field (SWMU 2). The pretreated wastewater was then discharged to the Benton Harbor/Saint Joseph Sewage Disposal System (LECO, 1992). Paramount had to demonstrate that it was no longer discharging PCB-contaminated oils before it was granted permission to discharge to the public sewer system (Benton Harbor-Saint Joseph Joint Sewage Disposal Plant, 1982). The non-PCB excess hydraulic oil generated during pretreatment was taken to Bush Oil Co. in Wayland, Michigan, for recovery. Excess hydraulic oil containing PCBs was taken to CECOS/CER Company in Williamsburg, Ohio (EPA, 1983). No comprehensive information on generation rates was available. The Former Tile Field (SWMU 2) was excavated in 1982 and 1986, due to observed oil releases. Potentially contaminated soils were taken off site and disposed of in Class II landfills (LECO, 1992).

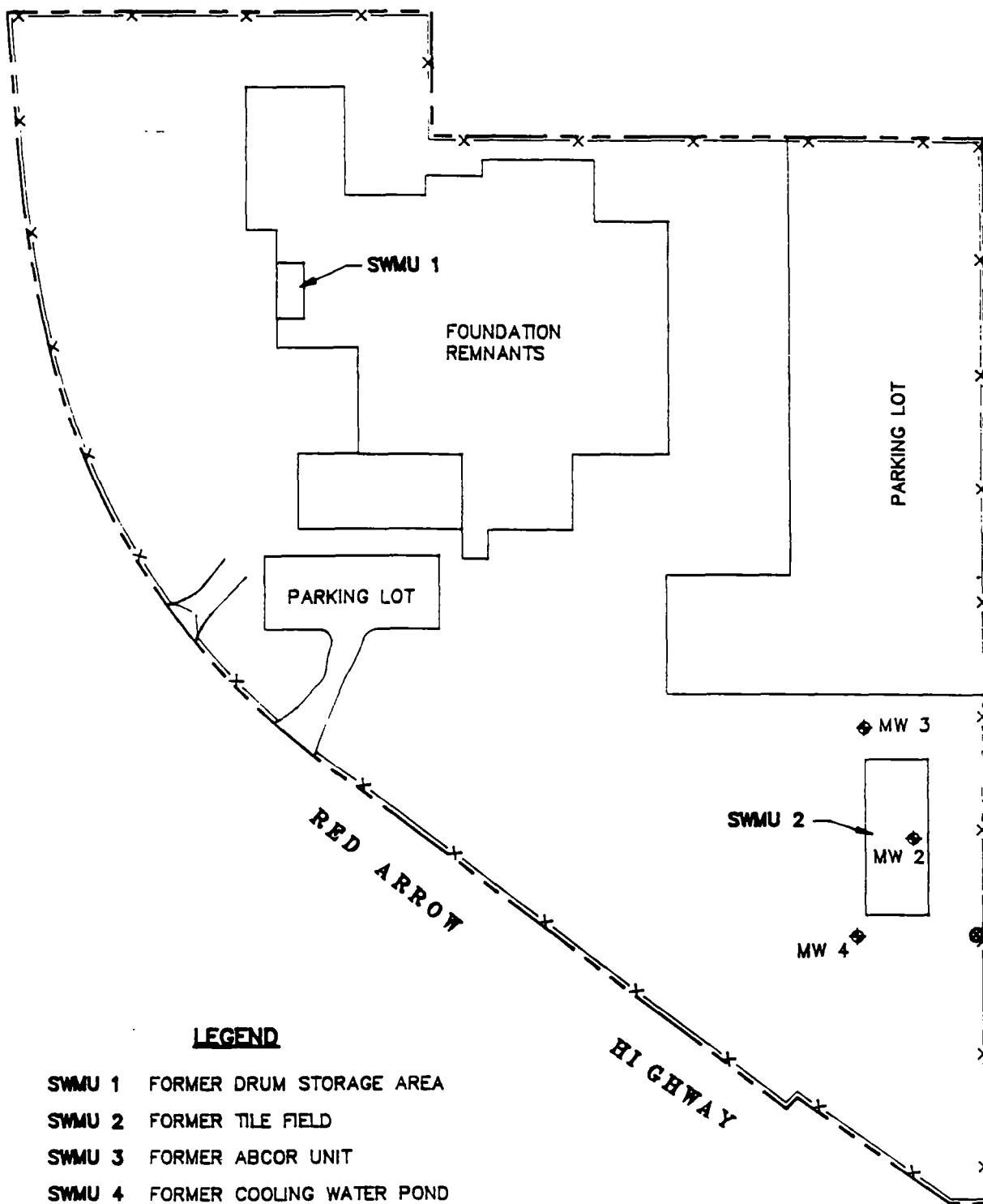
In 1961, Paramount began using city water for die cast machine cooling purposes. In 1962, Paramount added a chromium inhibitor to control fouling and slime. The cooling water containing chromium was discharged to the Former Cooling Water Pond (SWMU 4). In 1963,

**TABLE 1**  
**SOLID WASTE MANAGEMENT UNITS**

<u>SWMU Number</u>	<u>SWMU Name</u>	<u>RCRA Hazardous Waste Management Unit<sup>a</sup></u>	<u>Status</u>
1	Former Drum Storage Area	Yes	Inactive; not closed
2	Former Tile Field	No	Inactive; excavated in 1982 and 1986
3	Former Abcor Unit	No	Inactive; removed in 1986 and sold
4	Former Cooling Water Pond	No	Inactive; excavated in 1963

Note:

<sup>a</sup> A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.



### LEGEND

- SWMU 1 FORMER DRUM STORAGE AREA
- SWMU 2 FORMER TILE FIELD
- SWMU 3 FORMER ABCOR UNIT
- SWMU 4 FORMER COOLING WATER POND
- ◆ MONITORING WELL
- ⊙ BACKGROUND SOIL SAMPLE

NOTE: SWMU 3 AND SWMU 4  
LOCATIONS UNKNOWN

75' 0 75' 150'  
SCALE: 1" = 150'

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**FIGURE 2**  
**FACILITY LAYOUT**

**PMC** ENVIRONMENTAL MANAGEMENT, INC.

**TABLE 2**  
**SOLID WASTES**

<u>Waste/EPA Waste Code<sup>a</sup></u>	<u>Source</u>	<u>Solid Waste Management Unit</u>
Waste Trichloroethylene/F001	Vapor degreasing	SWMU 1
Wastewater and Excess Hydraulic Oil/NA	Die cast machines	SWMUs 2 and 3
Excess Hydraulic Oil Containing PCBs/NA	Die cast machines	SWMUs 2 and 3
Cooling Water Containing Chromium/Unknown <sup>b</sup>	Die machine cooling water	SWMU 4

**Notes:**

<sup>a</sup> Not applicable (NA) designates nonhazardous waste.

<sup>b</sup> No criteria for hazardous waste determination had been established when this waste was generated.

ground-water samples from neighboring drinking water wells indicated the presence of hexavalent chromium. Therefore, in 1963, Paramount stopped using the chromium inhibitor and excavated the Former Cooling Water Pond. Prior to excavation, cooling water containing chromium which remained in the pond was treated with a bisulfite compound. The excavated soil was taken to a Class II landfill [Michigan Water Resources Commission (MWRC), 1963]. This waste was not assigned a waste code, because criteria for hazardous waste determination had not been established. No information on waste generation rates was available.

## **2.4 HISTORY OF DOCUMENTED RELEASES**

This section discusses the history of documented releases to ground water, surface water, air, and on-site soils at the facility.

Paramount has a history of releases to on-site soils and ground water at the facility. Between 1949 and 1981, the facility disposed of excess hydraulic oils containing PCBs at the Former Tile Field (SWMU 2). In 1981 and 1982, soil and ground-water sampling revealed oil and grease contamination (2.6 to 4.6 milligrams per liter) affected ground water in the upper aquifer and extended to the first clay layer at 35 to 40 feet. PCBs were found in the soil at the Former Tile Field (SWMU 2) (7.4 microgram per gram, dry weight), but not in the ground water under the facility (Wightman, 1981). A cleanup of contaminated soils in the area of the Former Tile Field (SWMU 2), including the removal of 900 cubic yards of contaminated soil, was conducted in May 1982. Laboratory results of soil and ground-water samples are in Attachment D, Sample Results, 1982 Remediation (Wightman, 1981 and EPA, 1983).

In 1986, a release of non-PCB excess hydraulic oil was identified which originated from a leak in the Former Abcor Unit (SWMU 3). The oil leak was caused by piping located in the Former Tile Field (SWMU 2) and contaminated the Former Tile Field (SWMU 2). In 1986, sampling at the Former Tile Field (SWMU 2) revealed oil, grease, iron, and manganese in soil at levels above background concentrations. Aromatic hydrocarbons were detected in the ground water at the following levels (micrograms per liter): toluene (2.6), ethyl benzene (1.6), and xylene (4.9). In November 1986, the contaminated soils in the Former Tile Field (SWMU 2) were excavated and disposed of at the Southeast Berrien County Landfill. More than 3,700 cubic yards of contaminated soil were removed. The excavation was backfilled with a gravelly loam obtained from off site (Wightman, 1987). On January 23, 1987, MDNR approved the excavation (MDNR, 1987). Ground-water and soil sampling results are included in Attachment E, Sample Results, 1986 Remediation. MDNR approved the remediation and agreed with the facility's assessment that no additional action was required at the site (LECO, 1992).

In 1961, Paramount began using city water for cooling purposes. In 1962, Paramount added a chromium inhibitor to control fouling and slime. The waste chromium cooling water was discharged to the Former Cooling Water Pond (SWMU 4). Water sampling of neighboring drinking water wells indicated the presence of hexavalent chromium in drinking water wells. In 1963, Paramount stopped using the chromium inhibitor and excavated the Former Cooling Water Pond. Paramount conducted sampling of the pond from August through October 1963. Results of these surface water samples ranged from 0.11 to 0.35 milligrams per liter of chromate. (WRC, 1963). Paramount excavated the area and took the contaminated soil to a Class II landfill. MWRC approved this activity (MWRC, 1963). No records of sampling of this SWMU after the remediation were found.

## **2.5 REGULATORY HISTORY**

Paramount submitted a Notification of Hazardous Waste Activity form as a generator and storage facility to EPA on August 14, 1980 (Paramount, 1980a). Paramount submitted a RCRA Part A permit application on November 14, 1980 (Paramount, 1980b). The application listed a process capacity of 55 gallons of storage in containers (S01) of F001 waste for the Former Drum Storage Area (SWMU 1) (Paramount, 1980b). On January 16, 1981, Paramount submitted a revised Notification of Hazardous Waste Activity form that did not include the storage activity, only waste generation (Paramount, 1981).

On December 1, 1982, Paramount requested withdrawal of the Part A permit application, informing EPA that generation of waste trichloroethylene was discontinued in March 1981 and the waste was removed on September 14, 1981. Paramount did not state the quantity of waste that had been stored at the facility (EPA, 1984). During the PA, PRC did not locate any acknowledgement of withdrawal of the Part A permit application.

MDNR inspected the Paramount facility for RCRA compliance in 1982 and 1983 and concluded the facility did not handle hazardous waste. No violations were noted during either inspection (MDNR, 1982 and 1983). Based on the 1982 and 1986 releases, MDNR has scored the facility as an "pollution site" using the Agency's Site Assessment Model (LECO, 1992). LECO is currently trying to have the site delisted (LECO, 1992).

The facility did not have operating air permits.

The facility did not operate under any National Pollutant Discharge Elimination System permits. Paramount did have a permit to discharge to the Benton Harbor-Saint Joseph Joint

Sewage Disposal Plant. The facility was required to monitor for pH, biological oxidation demand, and phosphorous.

## **2.6 ENVIRONMENTAL SETTING**

This section describes the climate; flood plain and surface water; geology and soils; and ground water in the vicinity of the facility.

### **2.6.1 Climate**

The climate in Berrien County is temperate. The lowest average daily temperature is 18.3 degrees Fahrenheit (°F) in January. The highest average daily temperature is 82.1°F in July. In winter the average temperature is 27°F and in summer the average temperature is 70° F (U.S. Department of Agriculture [USDA], 1980).

The total annual precipitation for the county is 36 inches. The mean annual lake evaporation for the area is 30 to 32 inches (U.S. Department of Commerce [USDC], 1968). The 1-year, 24-hour maximum rainfall is 2.25 inches (USDC, 1963).

The prevailing wind is from the south southwest. Average wind speed is highest in March at 12.4 miles per hour (USDA, 1980).

### **2.6.2 Flood Plain and Surface Water**

The facility is not located in a flood-prone area (Federal Emergency Management Agency, 1978).

The facility lies 1 mile east of the Lake Michigan shoreline. The facility lies in a north-south trending featureless flat plain bounded by a north-south topographic high to the west and Hickory Creek to the east. Hickory Creek lies 2,500 feet to the southeast and flows in a northeasterly direction. Several small ponds lie between 1,500 and 3,000 feet to the south of the site. Surface drainage is likely toward Hickory Creek (Wightman, 1987).

### **2.6.3 Geology and Soils**

Site-specific data was not available; therefore, regional geologic information is presented. Soil at the facility consists principally of Thetford loamy sand. The Thetford loamy sand is described as a nearly level, somewhat poorly drained soil. The surface layer is a dark brown

loamy sand, with a brownish yellow to pale brown, mottled fine sand below that. The next layer is a pale brown, mottled fine sand with thin layers of yellowish brown loamy fine sand. In places, the thin layers are absent. The Thetford loamy sand typically has 0 to 2 percent slopes. Permeability of the Thetford loamy sand is moderately rapid, and surface runoff is slow. The available water capacity is low (Wightman, 1987).

Surface geology shows the area to lie near the boundary between Lacustrine sand and gravel deposits and an end moraine of medium-textured till. The Lacustrine deposits are typically pale brown to reddish brown, fine to medium sand, commonly including beds or lenses of small gravel. The gravel is rich in igneous and metamorphic rocks. This unit occurs chiefly as former beach and near-off-shore littoral deposits of the glacial Great Lakes, and may include intercalated lacustrine clay. Locally, this unit may be veneered by sheets or small dunes of eolian sand. End moraines of coarse-textured till are typically grayish brown or reddish brown, non-sorted glacial debris. The matrix consists of a sandy clay loam, sandy loam, or loamy sand, with variable amounts of cobbles and boulders. This unit typically occurs in narrow linear belts of hummocky relief that marks former sandstills on an ice-sheet margin. This unit includes small areas of ground moraines and outwash (Wightman, 1987).

#### **2.6.4 Ground Water**

Well logs from within 2 miles of the facility indicate a surface sand unit approximately 20 to 40 feet thick. Below this sand unit is a clay unit of variable thickness 4 to 20 feet thick, followed by alternating, relatively thin layers of sand and clay. The closest downgradient drinking water well to the facility is located approximately 750 feet to the southwest on Red Arrow Highway, where four residences use private drinking water wells. All other residences and businesses in the area are served by the Saint Joseph water system. Ground-water flow is essentially in a westerly direction with a gradient of 0.0065 (Wightman, 1987).

#### **2.7 RECEPTORS**

The facility occupies 10.2 acres in a residential area in Stevensville, Michigan. Stevensville has a population of about 1,200 people.

The facility is bordered on the north by residences and Interstate 94, on the west by Win Schuler's restaurant, on the south by residences, and on the east by the Stevensville Cemetery and residences. The nearest residence is located about 200 feet south of the facility. The facility is surrounded by a 7-foot fence with a locked gate. This gate opens into the grassy part of the facility not onto the former parking lot as shown in Figure 2.

Hickory Creek lies 2,500 feet to the southeast and is used for drainage. Surface drainage for the facility is likely toward Hickory Creek. Lake Michigan is located 1 mile west of the facility. Several small ponds lie between 1,500 and 3,000 feet to the south of the site (Wightman, 1987).

Ground water is used by four nearby residences as a private water supply. The closest drinking water well to the facility is located approximately 750 feet to the southwest, downgradient, on Red Arrow Highway. The nearest industrial well is located at the facility (Wightman, 1987). Municipal water is provided by the Saint Joseph water system which receives its water from Lake Michigan (LECO, 1992).

Sensitive environments are not located on site. The nearest sensitive environment-- a forested, seasonally flooded, broad leaved deciduous wetland-- is located about 1,100 feet northwest (U.S. Department of Fish and Wildlife, 1992).

### **3.0 SOLID WASTE MANAGEMENT UNITS**

This section describes the four SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC's observations. Figure 2 shows the locations of SWMUs 1 and 2. The exact locations of SWMUs 3 and 4 are unknown.

#### **SWMU 1**

##### **Former Drum Storage Area**

**Unit Description:** This unit was located indoors at the northern end of the aluminum recycling area and consisted of a 10- by 20- foot area used to store waste trichloroethylene (F001) in 55-gallon drums. The building that housed this area was demolished in 1988 (see Photograph No. 1).

**Date of Startup:** This unit began operations in November 1980.

**Date of Closure:** This unit has been inactive since September 1981. The building was demolished in 1988. However, PRC found no documentation that the unit has gone through RCRA closure.

**Wastes Managed:** This unit managed waste trichloroethylene (F001) from vapor degreasing operations. This waste was picked up for off-site recycling by Gold Shield Solvents in Grand Rapids, Michigan.

**Release Controls:** This unit has been removed, and there is no record of any release controls for the unit.

**History of Documented Releases:** There were no documented releases from this unit.

**Observations:** PRC observed that the unit has been removed from the facility. PRC did not observe any evidence of release in the area.

#### **SWMU 2**

##### **Former Tile Field**

**Unit Description:** This unit consisted of an outside tile field approximately 85 feet square located at the west side of the facility (see Photograph

No. 2). Excess hydraulic oil (both PCB and non-PCB) were disposed of directly into this unit.

**Date of Startup:** This unit began operations around 1949 (estimate).

**Date of Closure:** This unit has not been used since 1981.

**Wastes Managed:** This unit managed nonhazardous wastewater and excess hydraulic oil from the die cast machines. Some of the excess hydraulic oils contained PCBs. This unit also managed storm water from roof drains.

**Release Controls:** This unit has been removed, and there is no record of any release controls for the unit.

**History of Documented Releases:** In 1982 and 1986, this unit has had documented releases of wastewater and excess hydraulic oil. The 1982 release included oils contaminated with PCB. The 1986 release was caused by a break in old process piping.

**Observations:** PRC observed that there was no indication of the unit. At the time of the VSI, PRC did not observe any evidence of release in the area.

**SWMU 3** **Former Abcor Unit**

**Unit Description:** This unit consisted of a recirculation tank, Abcor filter tubes, pumps and valves. The unit, designed for 100-gallon per hour maximum flow rate, reduced the oil and grease concentration in wastewater to 40 milligram per liter. From information gathered during the PA, it appears the unit was located near the Former Tile Field (SWMU 2). However, the exact location is unknown (see Photograph No. 3).

**Date of Startup:** This unit began operations around 1981.

<b>Date of Closure:</b>	This unit has not been used since 1986. This unit was removed and sold.
<b>Wastes Managed:</b>	This unit managed wastewater and excess hydraulic oil from the die cast machines. Treated wastewater from the unit was discharged to the sanitary sewer. Excess hydraulic oil recovered from the unit was taken off-site for recycling. Non-PCB oil was taken to Bush Oil Company in Wayland, Michigan. PCB oil was taken to CECOS/CER in Williamsburg, Ohio.
<b>Release Controls:</b>	This unit has been removed, and there is no record of any release controls for the unit.
<b>History of Documented Releases:</b>	The a line in the closed loop system of the unit broke in 1986 causing releases to the Former Tile Field. This spill was remediated as part of the 1986 remediation.
<b>Observations:</b>	From the available information, PRC could not determine the exact location of this unit and therefore did not observe it.
<b>SWMU 4</b>	<b>Former Cooling Water Pond</b>
<b>Unit Description:</b>	This unit consisted of an earthen pond of unknown size where cooling water containing chromium was discharged. From available information, PRC could not determine where this area was located.
<b>Date of Startup:</b>	This unit began operations around April 1961.
<b>Date of Closure:</b>	This unit ceased operations in 1963.
<b>Wastes Managed:</b>	This unit managed cooling water containing chromium.
<b>Release Controls:</b>	This unit has been removed, and there is no record of any release controls for the unit.

**History of  
Documented Releases:**

Documented releases occurred to soil and ground water in 1963. Neighboring residents using drinking well water reported discolored water, which, when analyzed was found to be contaminated with chromium. Before soil was removed from the pond, cooling water containing chromium which remained in the pond was also treated with a bisulfite compound. The pond was excavated in 1963. This release is described in Section 2.4.

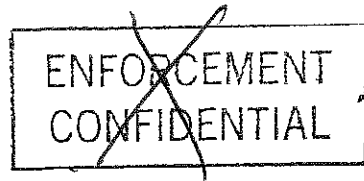
**Observations:**

From the available information, PRC could not determine the location of this unit and therefore did not observe it.

#### **4.0 AREAS OF CONCERN**

**PRC identified no AOCs during the PA/VSI.**

releasable  
TOL 8/24/17



## 5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified four SWMUs and no AOCs at the LECO facility. Background information on the facility's location; operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. Following are PRC's conclusions and recommendations for each SWMU. Table 3, at the end of this section, summarizes the SWMUs at the facility and the recommended further actions.

### SWMU 1

#### Former Drum Storage Area

##### Conclusions:

The potential for release to all ground water, surface water, air, and on-site soils is low for this unit. Currently no industrial activities take place at the facility and no hazardous waste is stored at the unit. According to the PA, the unit stored waste trichloroethylene in 55-gallon drums from November 1980 to September 1981. No releases were documented from this unit. PRC found no documentation that the unit had gone through RCRA closure.

##### Recommendations:

PRC recommends EPA resolve the regulatory status of this unit as closed or initiate RCRA closure of the unit, as necessary.

### SWMU 2

#### Former Tile Field

##### Conclusions:

This unit is currently not active. Wastewater and excess oil (both PCB and non-PCB) from the die cast machines were deliberately disposed in the unit from 1949 (estimate) to 1981. Approximately 900 cubic yards of visibly contaminated soil was removed in 1982. An additional release of non-PCB oil occurred in 1986. In 1986, 3,700 cubic yards of soil were removed. Soil and ground-water sampling after the remediation indicated elevated levels of iron and oil and grease. In addition, aromatic hydrocarbons were detected in the ground water at the following levels (micrograms per liter): toluene (2.6), ethyl benzene (1.6), and xylene (4.9). MDNR approved the remediation and agreed with the facility's assessment that no additional action was required at the site. The potential for release to all environmental media is summarized below.

release date  
TDC 8/22/17

~~ENFORCEMENT  
CONFIDENTIAL~~

Ground Water: A release of waste oils containing PCBs has occurred from this unit. The soils in the area have been remediated, and MDNR has approved the remediation activities. Ground-water sampling conducted in 1986 indicated the presence of aromatic hydrocarbons present in concentrations listed above. The facility concluded that no additional remedial activity was necessary and MDNR agreed with this assessment. MDNR has not recommended any additional action.

Surface Water: The potential for release is low. The unit is no longer active. Ground-water sampling conducted in 1986 indicated the presence of aromatic hydrocarbons present in concentrations of micrograms per liter, but the facility and MDNR concluded that no additional remedial activity was necessary. The contaminants in ground water would not impact surface water in the area.

Air: The potential for release is low. The unit managed nonvolatile wastes.

On-site soils: A release of waste oils containing PCBs has occurred from this unit. The soils in the area have been remediated, and MDNR has approved the remediation activities.

Recommendations: PRC recommends no further action for this SWMU at this time.

#### SWMU 3

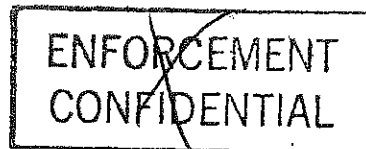
#### Former Abcor Unit

#### Conclusions:

A broken line in the abcor unit caused a release in 1986 which flowed into the Former Tile Field. This release was remediated in 1986. This unit was removed in 1986 and sold. The potential for release to all environmental media is summarized below.

Ground Water: A release of waste oils to ground water occurred when the unit leaked in 1986. Ground-water sampling conducted in 1986 indicated the presence of aromatic hydrocarbons present in concentrations listed above. The facility concluded that no additional remedial activity was necessary and MDNR concurred. MDNR has not recommended any additional action.

releasable  
TJC 8/22/17



Surface Water: The potential for release is low. The unit is no longer active. Ground-water sampling conducted in 1986, indicated the presence of aromatic hydrocarbons present in ground water in concentrations of micrograms per liter. These contaminants would not impact surface water bodies due to the low concentrations present.

Air: The potential for release is low. The unit is inactive.

On-Site Soils: A release of waste oils has occurred from this unit. Contaminated soils in the area of the Former Tile Field, where the release occurred, were remediated. Soil sampling indicated the presence of high levels of oil and grease only. MDNR recommended no additional activity for this release.

Recommendations: PRC recommends no further action for this SWMU at this time.

#### **SWMU 4                      Former Cooling Water Pond**

##### **Conclusions:**

This unit consisted of an earthen pond where chromium cooling water was discharged. In 1963, after chromium was found in neighboring wells, the soil in the pond was excavated and removed. No soil sampling was conducted as part of the remediation in 1963. The Michigan Water Resources Commission, part of MDNR, did not require any additional activity for the facility. The potential for release to all environmental media is summarized below.

Ground Water: A release of chromium containing cooling water has occurred from this unit. The contaminated soils were removed in 1963 and ground water sampling conducted in 1986 did not indicate elevated chromium concentrations in the ground water under the facility.

Surface Water: The potential for release is low. Ground-water sampling conducted in 1986 did not indicate elevated chromium concentrations in the ground water under the facility. Ground-water sampling was conducted at the southeastern portion of the facility which is the direction of ground-water flow in this area. The contaminated soil at the unit has been removed, which would preclude a release to surface water.

releasable  
TSC 8/22/17

ENFORCEMENT  
CONFIDENTIAL

Air: The potential for release is low. The wastes managed were nonvolatile.

On-Site Soils: A release to on-site soils has occurred from this facility. Before soil was excavated from the pond, cooling water containing chromium was treated with a bisulfite compound. The area was excavated and potentially contaminated soils were removed in 1963. The Michigan Water Resources Commission, part of MDNR, did not require any additional activity for the facility.

Recommendations: PRC recommends no further action for this SWMU at this time.

releasable  
TOL 8/22/17

~~ENFORCEMENT  
CONFIDENTIAL~~

TABLE 3  
SWMU SUMMARY

<u>SWMU</u>	<u>Dates of Operation</u>	<u>Evidence of Release</u>	<u>Recommended Further Action</u>
1. Former Drum Storage Area	November 1980 to September 1981	None	Resolve the regulatory his unit or initiate RCRA closure of the unit, as necessary
2. Former Tile Field	1949 (estimate) to 1981	The facility purposely discharged oils contaminated with PCBs to this unit. The site was remediated in 1982 and 1986.	No further action at this time.
3. Former Abcor Unit	1981 to 1986	The unit leaked in 1986 causing releases of waste oil to the Former Tile Field.	No further action at this time.
4. Former Cooling Water Pond	1961 to 1963	In 1963, neighboring residents reported chromium contamination in their drinking water wells. The facility stopped using chromium and excavated the pond area in 1963.	No further action at this time.

## **REFERENCES**

- Benton Harbor-Saint Joseph Joint Sewage Disposal Plant, 1982. Discharge Authorization to Paramount Die Cast, January 12.
- Federal Emergency Management Agency, 1978. Flood Insurance Map, Lincoln Township, Barrien County Michigan, March 1.
- Hayes Albion Paramount Die Cast (Paramount), 1980a. Notification of Hazardous Waste Activity, August 14.
- Paramount, 1980b. Part A Permit Application, November 14.
- Paramount, 1981. Notification of Hazardous Waste Activity, January 16.
- Paramount, 1982. Letter from Robert J. Negri, Vice President and Treasurer to K. J. Klipitsch, U.S. EPA, Requesting withdrawal of Part A permit application, December 1.
- LECO Corporation (LECO), 1992. Petition to Delist, undated.
- Michigan Department of Natural Resources (MDNR), 1982. Compliance Evaluation Inspection of Paramount Die Cast Facility, March 17.
- MDNR, 1983. Compliance Evaluation Inspection of Paramount Die Cast Facility, May 26.
- MDNR, 1987. Letter from James C. Woodruff, Groundwater Quality Division, Plainwell District, January 23.
- Michigan Water Resources Commission (MWRC), 1963. Report of Investigation of Ground Water Contamination at the Paramount Die Cast Facility, October 22.
- U.S. Department of Agriculture (USDA), 1980. Soil Survey of Berrien County Michigan by Jerry D. Larson, Soil Conservation Service, November.
- U.S. Department of Commerce (USDC), 1963. Rainfall Frequency Atlas of the United States.
- USDC, 1968. Climatic Atlas of the United States.
- U.S. Department of Fish and Wildlife, 1992. Wetland Map.
- U.S. Environmental Protection Agency (EPA), 1983, PCB Inspection, Paramount Die Cast, April 7.
- EPA, 1984. Telephone Conversation with R. Negri, Paramount, November 26.
- U.S. Geological Survey (USGS), 1970. Topographical Map, Stevensville Quadrangle, 7.5-minute series.
- Wightman and Associate, Inc. (Wightman), 1981. Phase I Hydrogeological Study for Paramount Die Cast, September 1.
- Wightman, 1987. Report of a Hydrogeologic Investigation for Paramount Die Cast Division.

**ATTACHMENT A**  
**EPA PRELIMINARY ASSESSMENT FORM 2070-12**



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE MI 02 SITE NUMBER MID 005 135 785

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Leco Corporation	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 4947 Red Arrow Highway				
03 CITY Stevensville	04 STATE MI	05 ZIP CODE 49127	06 COUNTY Berrien	07 COUNTY CODE 21	08 CONG DIST 04
09 COORDINATES. LATITUDE 4 2° 01' 37" N		LONGITUDE 86° 30' 58" W			
10 DIRECTIONS TO SITE (Starting from nearest public road) From Interstate 94 exit at Red Arrow Highway East. The facility is located on the left, across from Win Schuler's Restaurant.					

III. RESPONSIBLE PARTIES

01 OWNER (if known) Leco Corporation	02 STREET (Business, mailing, residential) 3000 Lakeview Avenue				
03 CITY St Joseph	04 STATE MI	05 ZIP CODE 49085	06 TELEPHONE NUMBER (816) 983-5531		
07 OPERATOR (if known and different from owner)		08 STREET (Business, mailing, residential)			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER ( )		
13 TYPE OF OWNERSHIP (Check one) <input type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL: _____ (Agency name) <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER _____ (Specify) <input type="checkbox"/> G. UNKNOWN					
14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply) <input type="checkbox"/> A. RCRA 3010 DATE RECEIVED: 08 / 14 / 80    MONTH DAY YEAR <input type="checkbox"/> B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / /    MONTH DAY YEAR <input type="checkbox"/> C. NONE					

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input type="checkbox"/> YES DATE 08/23/92 <input type="checkbox"/> NO <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER: _____ (Specify) CONTRACTOR NAME(S): PRC Environmental Management, Inc. (PRC)		02 SITE STATUS (Check one) <input type="checkbox"/> A. ACTIVE <input type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN	03 YEARS OF OPERATION 1949   1986 <input type="checkbox"/> UNKNOWN BEGINNING YEAR ENDING YEAR
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED Hexavalent chromium was found in ground water in 1983. The source was excavated and no additional action was taken. PCB contaminated oil was disposed on site in a tile field that was excavated in 1982. A non PCB oil spill was discovered in 1986 and the area excavated so that no discolored soil remained.			
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION Chromium was found in the ground water of surrounding wells in 1983. No additional complaints were received after the original operator, Hayes Albion Paramount Die Cast, excavated the source and stopped using chromium. After the oil spills were discovered in 1982 and 1986, all visibly contaminated soil was excavated and removed. According to the hydrogeologic investigation, the 1986 cleanup revealed "no significant vertical or horizontal ground-water degradation." The Michigan Department of Natural Resources Agreed with this conclusion.			

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.) <input type="checkbox"/> A. HIGH (Inspection required promptly) <input type="checkbox"/> B. MEDIUM (Inspection required) <input type="checkbox"/> C. LOW (Inspect on time-available basis) <input type="checkbox"/> D. NONE (No further action needed; complete current disposition form)			
--	--	--	--

VI. INFORMATION AVAILABLE FROM

01 CONTACT Kevin Pierard	02 OF (Agency/Organization) U. S. EPA		03 TELEPHONE NUMBER (312) 886-4448	
04 PERSON RESPONSIBLE FOR ASSESSMENT Cathy M. Collins	05 AGENCY	06 ORGANIZATION PRC	07 TELEPHONE NUMBER (312) 858-8700	08 DATE 08/23/92 MONTH DAY YEAR

**ATTACHMENT B**  
**VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS**

## **VISUAL SITE INSPECTION SUMMARY**

**LECO, Co (Formerly Hayes Albion Paramount Die Cast)**  
**4947 Red Arrow Highway**  
**Stevensville, Michigan**  
**MID 005 135 785**

**Date:** June 23, 1992

**Primary Facility Representative:** Mike Petrus, LECO Corporation  
**Representative Telephone No.:** 616/399-0896

**Inspection Team:** Cathy M. Collins, PRC Environmental Management, Inc.  
(PRC)  
Celeste Brancel, PRC

**Photographer:** Celeste Brancel

**Weather Conditions:** Cloudy, calm, about 60°F

**Summary of Activities:** The visual site inspection (VSI) began at 1:30 p.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. Facility representatives from Hayes Albion Paramount Die Cast were invited to the VSI, but did not attend.

The VSI tour began at 1:50 p.m. The facility is currently an open field with only the foundation of the former building remaining. PRC toured the approximate locations of the Former Drum Storage Area (SWMU 1) and Former Tile Field (SWMU 2). There was no visible indication of contamination. The locations of SWMUs 3 and 4 could not be determined from the information available; therefore, these areas were not observed.

The tour concluded at 2:15 p.m., after which the inspection team held an exit meeting with facility representatives. The VSI was completed and the inspection team left the facility at 2:20 p.m.



Photograph No. 1  
 Orientation: West  
 Description: Approximate location of Former Drum Storage Area

Location: SWMU 1  
 Date: June 23, 1992



Photograph No. 2  
 Orientation: South  
 Description: Approximate location of Former Tile Field and remediation activities

Location: SWMU 2  
 Date: June 23, 1992



Photograph No. 3

Orientation: East

Description: Approximate location of Former Abcor Unit

Location: Potential location of SWMU 3

Date: June 23, 1992

**ATTACHMENT C**  
**VISUAL SITE INSPECTION FIELD NOTES**

(126)

FACILITY

TOUR 10:15

Guthy  
Mc  
Allin

Mike Petrus  
President

## EXPEDITORS, INC.

HYDRAULIC DREDGING/MARINE CONSTRUCTION  
CONSULTANTS

1497 South Lakeshore Drive  
Ludington, Michigan 49431

Bus. (616) 399-0896  
Res. (616) 845-6018

MIKE TELLS  
LECOI RETIRES.  
THE FACILITY  
HAS BEEN  
LEVELED

PHOTO  
ORIENTATION

S  
FACILITY  
PARKING LOT  
IS STILL INTACT  
PHOTO  
WELL

PHOTO APP. FROM  
STORAGE

(126)

FACILITY

TOUR 10:15

Guthy  
Mc  
Allin

(127)

23 JUNE 1992

FORMER

HAYES - ALBION

60°P  
C(111)

LECO SITE

MID COS 135 78.5

MIKE PETRUS 130

LECO RET' RES.

THE FACILITY

HAS BEEN

LEVELED

PHOTO 1

ORIENTATION

S

FACILITY

PARKING LOT

IS STILL INTACT

PHOTO

WELL

PHOTO

APP. DRUM  
STORAGE

(128)

PHOTO

ORIENTATION

APPROXIMATE

TILE FIELD

AREA

THE FACILITY

IS SURROUNDED

BY A 7-FOOT

CHAIN LINK

FENCE

PHOTO

ORIENT

WEST

PHOTO

ORIENT

S

PHOTO

ORIENT

N

APPROXIMATE

LOCATION

OF TILE FIELD

HAYES - ALBION

REPRESENTATIVES

DID NOT SHOW

UP FOR THE

VS.

VERY LITTLE

INFORMATION

TO MAKE ACTUAL

JUDGEMENTS AT

THE FACILITY.

WELLS ARE VISIBLE

BUT HAVEN'T

BEEN USED

SINCE ABOUT

1986.

(129)

(130)

PRC DID  
NOT NOTE  
ANY INDICATIONS  
OF SPILLS OR  
CONTAMINATION  
AT THE FACILITY

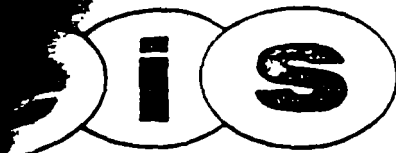
PRC  
OFF SITE  
2:20 PM

Call  
~~Call~~

(131)

~~Call~~

**ATTACHMENT D**  
**SAMPLE RESULTS, 1982 REMEDIATION**



ENVIRONMENTAL INSTRUMENT SYSTEMS, INC.  
116 North Hill Street • South Bend, Indiana 46617 • Telephone (219) 287-7151

## ANALYTICAL REPORT SHEET

CLIENT:

Wightman & Associates, Inc.  
St. Joseph, Michigan

SAMPLE IDENTIFICATION:

Soil Samples

ANALYSIS NO: 6436, 6437

DATE SAMPLED:

DATE RECEIVED: 6/19/81

DATE FORWARDED: 8/19/81

<u>Parameter</u>	<u>Soil Sample #1 Control</u>	<u>Soil Sample #2 Contaminated</u>
Zinc (% by Weight, as rec'd)	0.0012	0.0017
Oil & Grease (µg/g, as rec'd)	842.4	416.4

*Andie Rozite*  
LABORATORY DIRECTOR



# ENVIRONMENTAL INSTRUMENT SYSTEMS, INC.

116 North Hill Street • South Bend Indiana 46617 • Telephone (219) 287-7151

## ANALYTICAL REPORT SHEET

### CLIENT:

Wightman & Associates  
St. Joseph, Michigan

### SAMPLE IDENTIFICATION:

EP Hazardous Waste Leachate/  
Toxicity

ANALYSIS NO: 6436

DATE SAMPLED:

DATE RECEIVED: 6/19/81

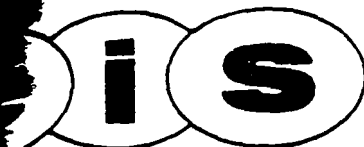
DATE FORWARDED: 8/27/81

all results in mg/l

<u>Parameter</u>	<u>Concentration</u>
Arsenic	<0.01
Barium	0.1
Cadmium	<0.05
Chromium	<0.05
Lead	<0.05
Selenium	<0.005
Silver	<0.05
Endrin	<0.0001
Lindane	<0.00001
Methoxyehlor	<0.0009
Toxaphene	<0.001
2,4, D	<0.0007
2,4,5TP Silvex	<0.0001

Sample was extracted and analysed  
according to the Resource Conservation  
& Recovery Act (RCRA) EP Toxicity Test  
procedure as enacted in December 1980.

*Andri Rozite*  
LABORATORY DIRECTOR

**ENVIRONMENTAL INSTRUMENT SYSTEMS, INC.**

116 North Hill Street • South Bend, Indiana 46617 • Telephone (219) 287-7151

July 23, 1981

Mr. Thomas A. Deneau  
Wightman & Associates, Inc.  
P. O. Box D  
St. Joseph, Michigan 49085

Dear Tom:

The following partial results are submitted for the water and soil samples for Paramount Die Cast. The samples were dated 6/19/81.

<u>Parameter</u>	<u>Water Samples</u>			
	<u>Well Water</u>	<u>#1</u>	<u>#2</u>	<u>#3</u>
pH	7.9	6.6	6.8	7.1
COD (mg/l)	<10.	460.	160.	32.
Oil & Grease (mg/l)	0.6	3.6	4.6	2.6
Total Zinc (mg/l)	0.04	1.2	0.42	0.40
PCB (µg/l)	N.D.	N.D.	N.D.	N.D.

Notes

1. N.D. = None Detected. Detection limit, based on using the PCB 1221 is 42.6 µg/l. The PCB 1221 is the least responsive species in our analytical scheme. The following PCB's were determined to be absent: 1221, 1242, 1254 and 1260.
2. The well water sample revealed organic contaminants to be present. These contaminants are not identifiable but are high molecular weight species and not volatile compounds such chloroform. The presence of these types of compounds may be due to either of the following:
  1. They are, in fact, actually present in the water.
  2. They were introduced as contaminants by the sample containers.

The general responses of the organics in this sample indicated that the PCB 1242 may be present but this can not be confirmed at this time.

Soil Samples

Parameter

#1

#2

5.5

6.8

ature

4.7

15.3

ug/g dry wt)

N.D.\*

7.4\*\*

Grease

No Results

No Results

toxicity

No Results

N.D. = None Detected. Detection limit, based on PCB 1221 is 2.6  $\mu\text{g/g}$  dry weight.

Soil #2 contained both PCB 1242 and PCB 1254. 80% of the 7.4  $\mu\text{g/g}$  result is due to the PCB 1242.

Remaining sample results will be submitted in the near future. I apologize for the delay which has been caused by relocating our laboratories to a new facility.

Sincerely,

ENVIRONMENTAL INSTRUMENT  
SYSTEMS, INC.

*Andris Rozite*  
Andris Rozite

AR/kmg

# CAL

CANTON ANALYTICAL LABORATORY 153 Elder Street Ypsilanti, MI 48197 Phone 313 483-7430

To: Mr. Tom Mills  
HAYES ALBION CORP.  
1999 Wildwood Road  
Jackson, Michigan

Date: July 6, 1982


Re: Soil Samples rec'd 6-7-82

Results:

	Oil and Grease	PCB
Lateral	28,070	0.78
Ground	320	<0.005
Second Test Strear	40.	<0.005
1S, 18"	130	<0.005
1D, 30"	30.	0.014
Second Test DEEP	40	0.005
Second Test SHALLOW	10.	0.012

All results in mg/l.

CANTON ANALYTICAL LABORATORY

By:   
Peter W. Rakshan  
Laboratory Director

# CAL

RECEIVED

1982

CANTON ANALYTICAL LABORATORY 153 Elder Street Ypsilanti, MI 48197 Phone 313.483-7430

WATER QUALITY

To: Mr. Tom Mills  
HAYES-ALBION CORP.  
1999 Wildwood Road  
Jackson, Michigan 49202

Date: November 6, 1982

Re: Samples rec'd 10-20-82.

Results:

*See  
TO DWR  
1/4/83*

#1 Well Water, mg/l

PCB

0.00037

#2, Grease mg/kg

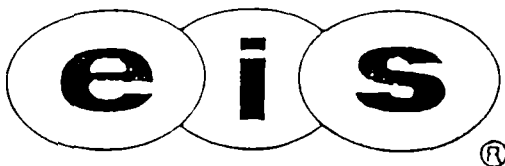
29.

CANTON ANALYTICAL LABORATORY

By: Peter W. Rekshan  
Peter W. Rekshan  
Laboratory Director

ENVIRONMENTAL ANALYSIS

**ATTACHMENT E**  
**SAMPLE RESULTS, 1986 REMEDIATION**



EIS ENVIRONMENTAL ENGINEERS, INC.

1701 North Ironwood Drive • South Bend, Indiana 46635 • Telephone (219) 277-5715

## ANALYTICAL REPORT SHEET

CLIENT: Wightman & Associates, Inc.  
John Hermann

### SAMPLE IDENTIFICATION:

Soil Samples - Listed Below

ANALYSIS NO: 2335F - 2338F

DATE SAMPLED:

DATE RECEIVED: 6-24-86

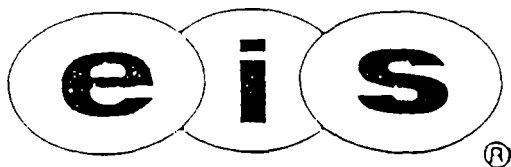
DATE FORWARDED: 7-24-86

Parameter	#1	#2	#3	#4
	Well #2 4' - 5.5'	Well #2 9' - 10.5'	Well #2 18.5' - 20'	Background Sample
Aluminum - mg/kg dry wt	3200.			5000.
Copper - mg/kg dry wt	12.			10.
Iron mg/kg dry wt	5460.			4230.
Magnesium - mg/kg dry wt	605.			610.
Manganese - mg/kg dry wt	44.			260.
Nickel - mg/kg dry wt	5.			6.
Silicon - mg/kg dry wt	450.			320.
Zinc - mg/kg dry wt	13.			18.
% Moisture (dried @ 60 °C)	8.7			5.6
Oil & Grease -mg/kg as Rec'd	1540.	380.	450.	370.

The samples were prepared and analyzed for Total Metals according to the EPA "Test Methods for Evaluating Solid Waste", SW-846 Second Edition.

Method 3050 was used for preparation and digestion followed by the method of Standard Additions for analysis.

LABORATORY DIRECTOR



# EIS ENVIRONMENTAL ENGINEERS, INC.

1701 North Ironwood Drive • South Bend, Indiana 46635 • Telephone (219) 277-5715

## VOLATILE ORGANIC COMPOUND (VOC) ANALYSIS REPORT

Client: Wightman & Associates

c/o Mr. Jon Herman

920 Broad Street

St. Joseph, MI 49085

P.O. # Verbal

Sample ID:

Water #1 - Auger Hole #1

Water #2 - Observation Well #1

Water #3 - Observation Well #2

Date Reported:

EIS Lab No.: 2339 F - 2341 F

Sample Date: 6-24-86

Date Received: 6-24-86

Date Analyzed: 7-28-86

Samples Received

Refrigerated: Yes Y No    

In 40cc Vials: Yes X No    

Air Space: Yes     No X

## RESULTS

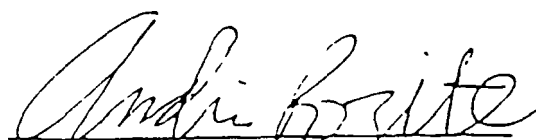
- The test procedures used for this analysis, and the listing of compounds detectable by these procedures, are described in Table 1 on the reverse side of this report sheet.
- If your sample contained any of the Table 1 Volatile Organic Compounds above a Quantifiable Detection Limit of 2 µg/l, these compounds are reported below. If no Table 1 Volatile Organic Compounds were detected, then a statement to this effect is listed below.
- Results are as follows:

Water #1 (Auger Hole #1) - No USEPA Priority Pollutant VOC was detected in this sample at the limit shown above.

Water #2 (Observation Well #1) - No USEPA Priority Pollutant VOC was detected in this sample at the limit shown above.

Water #3 (Observation Well #2) - This sample showed the presence of a multicomponent residual such as that yielded by fuel oil and/or gasoline. The species of Toluene (2.6 µg/l), Ethyl Benzene (1.6 µg/l) and Xylene (4.9 µg/l) were detected along with other multicomponent peaks. The total level of contamination is estimated at 20-30 µg/l based on Toluene response.

- Chromatograms of the analysis are enclosed.

  
LABORATORY DIRECTOR

CUSTOMER ADDRESS

THE UNIVERSITY OF CHICAGO

920 UNIVERSITY STREET

CHICAGO, ILL 60607

# DRINKING WATER ANALYSIS RESULTS

NOTE: "nd" indicates that maximum level has been exceeded or in the case of pH are either too high or too low.

nd indicates that none of these concentrations has been detected at or above our detection level.

Analysis performed: 1/15/82 Detection level: 1/15/82  
Sample type: 1/15/82 (mg/l) (ppm) (detected)

Microbiological & physical factors: 1/15/82

Total coliform organisms (per 100 ml): 1/15/82

Turbidity (Turbidity units): 1/15/82

Inorganic chemicals - metals:

Arsenic: 0.05 0.002 nd

Barium: 1.0 0.30 nd

Cadmium: 0.01 0.002 nd

Chromium: 0.05 0.004 nd

Copper: 1.0 0.004 0.007

Iron: 0.3 0.020 nd

Lead: 0.05 0.010 0.015

Manganese: 0.05 0.004 nd

Mercury: 0.002 0.0002 nd

Nickel: 0.05 0.004 nd

Selenium: 0.01 0.002 nd

Silver: 0.05 0.002 nd

Sodium: 1.0 0.1 nd

Zinc: 0.05 0.004 nd

Inorganic chemicals - others:

Chloride: 1.0 1.0 nd

Fluoride: 0.1 0.1 nd

Nitrate: 1.0 2.0 nd

Sulfate: 25.0 20.0 nd

pH (Standard Units): 7.5 7.5 nd

Hardness (as CaCO3): 20 20 nd

Total Solids (as H2O): 20 20 nd

Organic chemicals - trichloromethane:

Chloroform: 0.002 0.002 nd

Bromoform: 0.004 0.004 nd

Dibromochloromethane: 0.002 0.002 nd

Dibromochloromethane: 0.004 0.004 nd

Total THMs (sum of four above): 0.002 0.002 nd

Organic chemicals - herbicides & chlorinated pesticides:

Hexachlorobenzene: 0.002 0.002 nd

Endrin: 0.002 0.002 nd

Methoxychlor: 0.002 0.002 nd

Lindane: 0.002 0.002 nd

Toxaphene: 0.002 0.002 nd

Chlordane: 0.02 0.02 nd

Heptachlor: 0.002 0.002 nd

PCBs: 0.002 0.004 nd

Carbon tetrachloride	0.005	0.005	nd
1,2-Dichloroethane	0.005	0.002	nd
1,1,1-Trichloroethane	0.2	0.005	nd
1,1-Dichloroethane	0.005	0.002	nd
1,1,2-Trichloroethane	0.2	0.002	nd
1,1,2,2-Tetrachloroethane	0.005	0.002	nd
Chloroethane	0.005	0.002	nd
Chloroethylvinyl ether	0.005	0.003	nd
1,1-Dichloroethylene	0.007	0.002	nd
trans-1,2-Dichloroethylene	0.007	0.002	nd
1,3-Dichloropropane	0.005	0.002	nd
trans-1,2-dichloropropane	0.005	0.002	nd
Dibromochloropropane (DBCP)	0.005	0.005	nd
Methylene chloride	0.1	0.005	nd
Chloroform	0.1	0.005	nd
Bromochloroform	0.005	0.005	nd
1,1,1,2-Tetrafluoroethane	0.05	0.005	nd
Dichlorodifluoroethane	0.05	0.005	nd
Tetrachloroethylene	0.005	0.004	nd
Trichloroethylene	0.005	0.002	nd
Vinyl chloride	0.1	0.001	nd
Ethylendibromide (EDB)	0.11	0.01	nd
Benzene	0.005	0.0005	nd
Chlorobenzene	0.07	0.0005	nd
1,2-Dichlorobenzene	0.02	0.0005	nd
1,3-Dichlorobenzene	0.02	0.0005	nd
1,4-Dichlorobenzene	0.75	0.0005	nd
Ethylbenzene	0.01	0.0005	nd
Toluene	0.2	0.0005	nd
Xylene	0.2	0.0005	nd
Styrene	0.16	0.0005	nd
Organic chemicals - phenols			
Phenol	0.05	0.005	nd
2,4-Dimethylphenol	0.05	0.008	nd
2-Chlorophenol	0.05	0.005	nd
4-Chloro-3-Methylphenol	0.05	0.005	nd
2,4-Dichlorophenol	0.05	0.008	nd
2,4,6-Trichlorophenol	0.05	0.008	nd
2-Nitrophenol	0.05	0.008	nd
4-Nitrophenol	0.05	0.03	nd
Pentachlorophenol	0.22	0.08	nd
2,4-Dinitrophenol	0.05	0.05	nd
2-Methyl-4,5-Dinitrophenol	0.05	0.05	nd
Organic chemicals - chlorophenoxy herbicides			
2,4-D	0.1	0.001	nd
Silvex 2,4,5-TP	0.001	0.0005	nd

Note: The MCLs shown above and on page one of this report were derived from data published by one of the following agencies or groups. Where differing levels were recommended for the same parameter, MCL used the lower level. Where no recommended level was available from any source, we show our minimum detection level.

- EPA National Primary or Secondary Drinking Water Regulations.
- EPA National Contaminant Levels (NCL), Proposed (PNCL), Recommended (RNCL), Proposed Recommended (PRNCL).
- Guidance levels set by the EPA Groundwater Assessment Group.
- EPA's Adjusted Acceptable Daily Intake (ADI) for non-cancer agents.
- Where no recommended level was available from the sources, we have used the minimum detection level generally available using approved analytical methods.

I certify that the analyses performed for this report are accurate, and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

*Peter W. Ruhlman*

LABORATORY OF NATIONAL TESTING LABORATORIES, INC.

RES 7-84

Paramount Die Cast  
Observation Well #4  
Attn: Jon Hermann

6151 Stearns Road  
Cleveland, OH 44114  
(216) 442-2525

CUSTOMER ADDRESS

MIC-HIGH ASSOCIATES  
720 DODMAN STREET  
ST. JOSEPH, MI 49085-

# DRINKING WATER ANALYSIS RESULTS

NOTE: "nd" indicates that maximum levels have been exceeded, or, in the case of pH are either too high or too low.

Analysis performed			
Detection Level			
Level			
Microbiological & physical factors:			
Total coliform (organic level)	0	0.0	nd
Turbidity (Turbidity units)	1	0.1	23.0*
Inorganic chemicals - metals:			
Arsenic	0.05	0.002	nd
Barium	1.0	10.0	nd
Cadmium	0.01	0.002	nd
Chromium	0.05	0.004	nd
Copper	1.0	0.004	0.026
Iron	0.3	0.02	0.04
Lead	0.05	0.010	nd
Manganese	0.05	0.004	0.740*
Mercury	0.002	0.002	nd
Nickel	0.05	0.004	nd
Selenium	0.01	0.002	nd
Silver	0.05	0.002	nd
Sodium	---	10.0	27.0
Zinc	0.05	0.004	0.012
Inorganic chemicals - others:			
Chloride	250	250	nd
Fluoride	2.0	0.1	nd
Nitrate	10	10	nd
Sulfate	250	20	304
pH (Standard Units)	7.8	7.0	8.5
Hardness (as CaCO3)	---	20	150*
Total Solids (as HCO3)	---	30	274
Organic chemicals - total methane:			
Chloroform	0.002	0.002	nd
Bromoform	0.002	0.002	nd
Perchloroethylene	0.002	0.002	nd
Trichloroethylene	0.002	0.002	nd
Total THM (sum of above)	0.006	0.006	nd
Organic chemicals - total methane:			
Heptachlorobenzene	0.002	0.002	nd
Endrin	0.0001	0.0001	nd
Dieldrin	0.0001	0.0001	nd
Lindane	0.004	0.004	nd
Toxaphene	0.004	0.004	nd
Chlordane	0.002	0.002	nd
Heptachlor	0.002	0.002	nd
PCB's	0.002	0.004	nd

About 10 peaks showing up in chromatograms but not identified

Organic chemicals - volatiles	Level (Detected)	Level (Detected)
Carbon Tetrachloride	0.005	0.005
1,2-Dichloroethane	0.005	0.002
1,1,1-Trichloroethane	0.005	0.005
1,1-Dichloroethane	0.005	0.002
1,1,2-Trichloroethane	0.005	0.002
1,1,1,2,2-Pentachloroethane	0.005	0.002
Chloroethane	0.005	0.002
Chloroethylvinylether	0.005	0.002
1,1-Dichloroethylene	0.005	0.002
Trans-1,2-Dichloroethylene	0.005	0.002
1,2-Dichloropropane	0.005	0.002
Trans-1,2-Dichloropropane	0.005	0.002
Dibromochloropropane (DBCP)	0.005	0.005
Methylene(chloride)	0.005	0.005
Chloromethane	0.005	0.005
Bromomethane	0.005	0.005
Trichlorofluoromethane	0.005	0.005
Dichlorofluoromethane	0.005	0.005
Tetrachloroethylene	0.005	0.005
Trichloroethylene	0.005	0.005
Vinyl chloride	0.005	0.001
Ethylenedibromide (EDB)	0.11	0.01
Benzene	0.005	0.0005
Chlorobenzene	0.005	0.0005
1,2-Dichlorobenzene	0.005	0.0005
1,3-Dichlorobenzene	0.005	0.0005
1,4-Dichlorobenzene	0.005	0.0005
Ethylbenzene	0.005	0.0005
Toluene	0.005	0.0005
Xylene	0.005	0.0005
Styrene	0.005	0.0005
Organic chemicals - phenols		
Phenol	0.005	0.0005
2,4-Dimethylphenol	0.005	0.0005
2-Chlorophenol	0.005	0.0005
4-Chloro-3-Methylphenol	0.005	0.0005
2,4-Dichlorophenol	0.005	0.0005
2,4,6-Trichlorophenol	0.005	0.0005
2-Nitrophenol	0.005	0.0005
4-Nitrophenol	0.005	0.0005
Pentachlorophenol	0.005	0.0005
2,4-Dinitrophenol	0.005	0.0005
2-Nitro-4,6-Dinitrophenol	0.005	0.0005
Organic chemicals - chlorophenyl pesticides		
2,4-D	0.005	0.001
2,4,5-T	0.005	0.0005

NOTE: The MCLs shown above and on pages 10 and 11 of this report are the MCLs for the chemicals listed. Where different MCLs were recommended for the same parameter, the lower level was used. Where no recommended level was available from any source, we show our minimum detection level.

- 1. The National Primary or Secondary Drinking Water Regulations.
- 2. The Maximum Contaminant Level (MCL), Proposed MCL, Recommended MCL, or Proposed Secondary MCL.
- 3. The MCLs set by the EPA's National Drinking Water Advisory Group.
- 4. The EPA's Adjusted Acceptable Daily Intake (ADI) for non carcinogens.
- 5. Where no recommended level was available from the source, we have used the minimum detection level generally available from approved analytical methods.

I certify that the analyses performed for this report are accurate, and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.